FlyBy Math™ Alignment
Academic Standards: Mathematics

Number and Operation

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
5.1.3 Solve problems, compute fluently, and make reasonable estimates. h. solve real-world problems using decimals, fractions, and percents.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Predict outcomes and explain results of mathematical models and experiments.

Algebra

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
5.2.1 Represent and analyze patterns, relations, and functions. b. represent and analyze patterns and functions using words, tables, and graphs;	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
5.2.2 Represent and analyze mathematical situations and structures using algebraic symbols. d. express mathematical relationships using equations.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, graphs, and equations to solve aircraft conflict problems.
5.2.4 Analyze change in various contexts. a. investigate how a change in one variable relates to a change in a second variable; b. use a variety of methods to compare and describe situations involving constant and/or varying rates of change.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates. --Interpret the slope of a line in the context of a distance-rate-time problem.

Geometry

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations and Accomplishments	***FlyBy Math™* Activities**
5.3.2 Specify locations and describe spatial relationships using coordinate geometry and other representational systems. a. describe location and movement using appropriate mathematical language; b. find and specify points in Quadrant I of a coordinate system.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
5.3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems. b. create and describe mental images of objects, patterns, and paths; d. use visualization and spatial reasoning to solve real-world problems	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Predict the relative motion of two airplanes on given paths. --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Measurement

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations and Accomplishments	***FlyBy Math™* Activities**
5.4.1 Understand measurable attributes of objects and the units, systems, and processes of measurement. a. demonstrate understanding of the concepts of length, perimeter, circumference, area, weight, capacity, volume, elapsed time, and angle measure;	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
5.4.2 Apply appropriate techniques, tools, and formulas to determine measurements. a. apply and explain appropriate estimation strategies using standard units of measure; b. select and apply appropriate standard units to measure length, perimeter, area, capacity, volume, weight, time, temperature, and angles; c. select and use appropriate tools for measuring in real-world situations; d. solve real-world problems involving measurement and elapsed time;	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Predict outcomes and explain results of mathematical models and experiments.

Data Analysis & Probability	
Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.	
Learning Expectations and Accomplishments	***FlyBy Math™* Activities**
5.5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer questions. a. collect data using observations, surveys, and experiments; b. understand how data-collection methods affect the nature of the data set; c. represent data using pictographs, bar graphs, tables, circle graphs, and line graphs; d. interpret data displayed in pictographs, bar graphs, tables, circle graphs, and line graphs.	--Conduct simulation and measurement for several aircraft conflict problems. --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
5.5.3 Develop and evaluate inferences and predictions that are based on data. a. make predictions and justify conclusions based on data; b. design investigations to address a question;	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.